National Institute of Environmental Health Sciences

Resurgence of field fever in a temperate country: An epidemic of leptospirosis among seasonal strawberry harvesters in Germany in 2007

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Abstract:

BACKGROUND: Although leptospirosis is a reemerging zoonosis of global importance, outbreaks related to agricultural exposures are primarily situated in tropical countries. In July 2007, a suspected leptospirosis outbreak was recognized among strawberry harvesters from Eastern Europe who were working in Germany. An investigation was initiated to identify the outbreak source and the risk factors for infection. METHODS: We conducted a retrospective cohort study with use of a questionnaire administered to harvesters by health authorities in Romania, Slovakia, and Poland. Collected serum samples were tested by microscopic agglutination test and immunoglobulin M enzyme-linked immunosorbent assay. A case patient was defined as a person who worked in the strawberry field during the period 5 June-8 September 2007 and had leptospirosis-compatible symptoms and either an antibody titer 1:800 and a positive immunoglobulin M enzyme-linked immunosorbent assay result (for a confirmed case) or no serological confirmation (for a suspected case). Local rodents were examined for leptospirosis. RESULTS: Among 153 strawberry harvesters, we detected 13 confirmed case patients who had test results positive for antibodies against Leptospira species serogroup Grippotyphosa and 11 suspected case patients (attack rate, 16%). Risk of disease increased with each day that an individual worked in the rain with hand wounds (odds ratio, 1.1; 95% confidence interval, 1.04-1.14) and accidental rodent contact (odds ratio, 4.8; 95% confidence interval, 1.5-15.9). Leptospires of the serogroup Grippotyphosa were isolated from the kidneys of 7 (64%) of 11 voles. CONCLUSIONS: This is, to our knowledge, the largest leptospirosis epidemic to occur in Germany since the 1960s. Contact between hand lesions and contaminated water or soil and infected voles was the most likely outbreak source. The unusually warm winter of 2006-2007 supported vole population growth and contributed to this resurgence of leptospirosis in Germany. Because of ongoing climate change, heightened awareness of leptospirosis in temperate regions is warranted.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Precipitation

Geographic Feature: ☑

resource focuses on specific type of geography

Other Geographical Feature

Other Geographical Feature : temperate climate

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Germany

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Foodborne/Waterborne Disease

Foodborne/Waterborne Disease: Leptospirosis

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Racial/Ethnic Subgroup, Workers

Other Racial/Ethnic Subgroup: Not specified

Other Vulnerable Population: farmers

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content